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TEMPERATURE MEASURING APPARATUS

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ABSTRACT

PURPOSE: To eliminate any wiring hole in a window and a wall for connecting the inside with the outside of a building by enabling transmission of power and signals flowing opposite to each other with a transformer comprising a pair of coils.

CONSTITUTION: In the oscillation of an oscillator 35, when a switching element 28 is turned OFF while a switching element 29 is turned on with a controller 36, high frequency current from the oscillator 35 flows to a coil 27 so that a voltage is induced in a coil 26 with the electromagnetic induction. When a capacitor 24 is charged, a switching element 18 is turned ON. Only current flows by a pulse signal to the coil 26 from a pulse signal generator 16. A pulse with a temperature information is induced in the coil 27 and shaped 30 through the switching element 28 at the on state. By a clock from a clock generator 32, a counter 31 measures the pulse width or the repetition cycle. The measured values are stored temporarily in a memory 33 and the temperature is indicated on an indicator 34.

Fig. 1 shows a prior art in which a transmission line passing hole 14 is formed in a wall r passing therethrough electrical power supply lines 6, 7 and output lines 8. In connection the prior art, there are the following descriptions. "Since it is necessary to supply an ical power to the temperature sensing section 1, four conductive lines are used to establish ection between the outside of the house and the inside thereof. In this case, it is the easiest, reliable and most suitable way that the pass hole 14 was formed when the house was newly and the lines are passed therethrough. However, when the apparatus is used in the existing e, it is necessary to form the pass hole in the wall or window. Although it is sufficient that ize of the hole is 1 to 2 cm. There is a case that it is impossible or difficult to form such a due to a specific structure of the house or there is a case that it is not permitted to form such e. Thus, in these cases, it is not possible to install the temperature measuring apparatus."

Fig. 2 shows a structure of the temperature measuring apparatus of the present invention. is drawing, the left side portion including the coil 26 is a temperature sensing section and the t side portion is a main body portion. Between the coil 26 and the coil 27, a wall or window house is interposed, in which the coil 26 and the coil 27 constitute a transformer. 7
sifically, in this drawing, the reference numeral 15 is a temperature-sensitive sensor such as a mistor or a platinum resistance line. The reference number 16 is a pulse generator in which a th of a pulse or a cycle of the pulse varies in response to the resistor value of the temperature- sitive sensor 15, 17 is an amplifier for amplifying an output from the pulse generator, 18 is a tching element for supplying a voltage to the pulse generator 18 and the amplifier 17, 198 is a mparing circuit for controlling switching of the switching element 18, 20 and 21 denote stors, 23 is a capacitor, 24 is a capacitor for smoothing a rectifier circuit, 25 is a rectified de, 26 and 27 are a pair of coils which constitute a transformer. The reference numerals 28 i 29 are switching elements, 30 is a waveform shaping circuit, 32 is a counter, 32 is a clock erating circuit, 32 is a memory for temporarily storing an output from the counter 31, 34 is a lay of the temperature, 35 is an oscillator for generating high-frequency signals, 36 is a itching element, and 36 is a controller for controlling the switching element 28, 29 and the nter 31.

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